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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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04/08/2004

Neal Meyer

200312670-1

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22879

7590

02/23/2009

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

CHANG, RICK KILTAE

ART UNIT

PAPER NUMBER

3726

NOTIFICATION DATE

DELIVERY MODE

02/23/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “wires” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

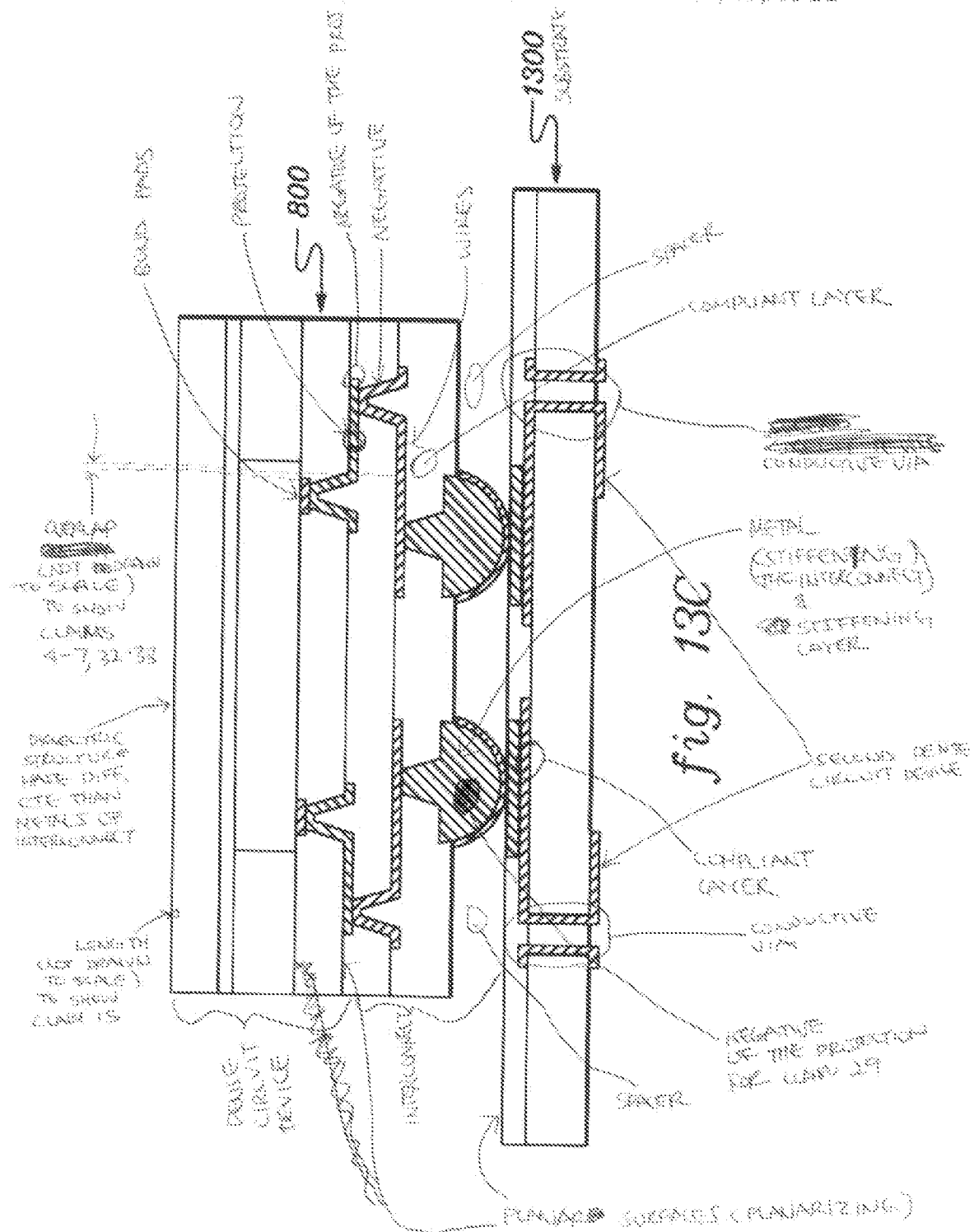
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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by

Eichelberger et al (US 6,555,908).

Eichelberger discloses as follows:



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The dielectric material of the interconnect forms a negative and receives and at least partially surrounds the projection as annotated above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al (US 6,555,908) in view of Official Notice.

Eichelberger fails to disclose the wires comprises copper.

Official Notice is taken that it is well known in the art to form wires using copper.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eichelberger by forming wires using copper, as taught by Official Notice, for the purpose of providing good electrical conductivity.

6. Claims 9, 12-14, 25-29, 31-39, 41-43 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al (US 6,555,908) in view of Tong et al (US 6,962,835).

Eichelberger fails to disclose covalent bonding at RT. The dielectric material forms a negative and receives and at least partially surrounds the projection as annotated above.

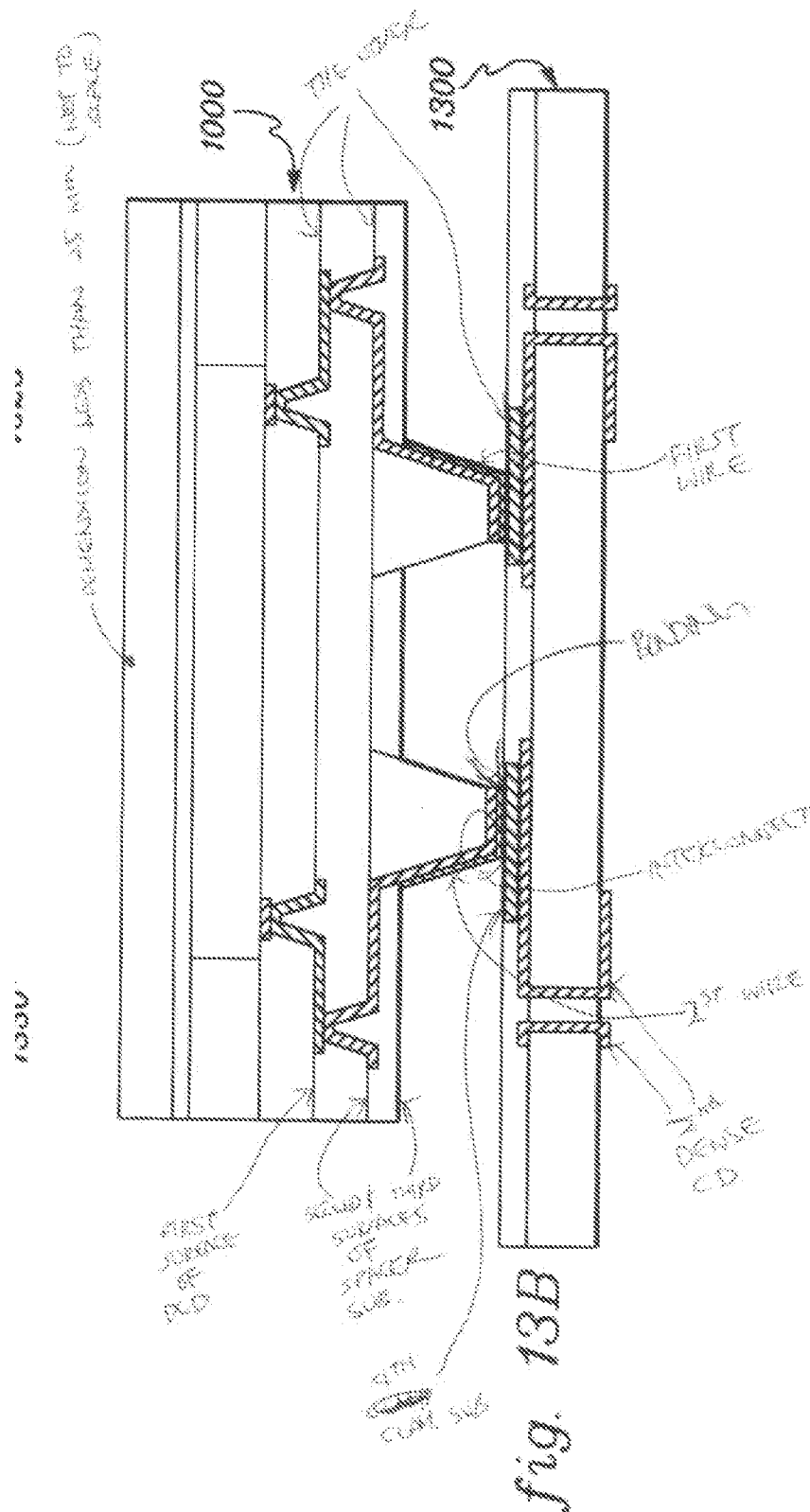
Tong discloses covalent bonding at RT (metal-to-metal bonding (metals have loose electron outer valence shell) at RT; col. 9, lines 60-62).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eichelberger by covalent bonding at RT, as taught by Tong, for the purpose of eliminating solder between metals.

7. Claims 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al (US 6,555,908) in view of Tong et al (US 6,962,835).

Eichelberger discloses as follows:



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SURFACES (RANALIZING)

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Eichelberger fails to disclose covalent bonding at LT.

Tong discloses covalent bonding at LT (metal-to-metal bonding (metals have loose electron outer valence shell) at RT; col. 9, lines 60-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eichelberger by covalent bonding at LT, as taught by Tong, for the purpose of eliminating solder between metals.

Allowable Subject Matter

8. Claims 29 and 88-93 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments filed 2/27/08 have been fully considered but they are not persuasive.

In order for the different parts to come together to form an assembly as shown in Fig. 13D, there must be a force or pressure acting on the parts. The weight of the device is pressing on the interconnect and the substrate. 1400 is pressing comprises mechanically clamping.

The dielectric material of the interconnect forms a negative and receives and at least partially surrounds the projection as annotated in Paragraph 2 above.

Wires are shown in Paragraph 2. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a slender, stringlike piece or filament of metal,) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations

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from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Paragraph 2 shows overlap. Space and breath dimensions are so small that they are included in the overlap.

In response to applicant's argument drawn to Eichelberger and Tong combination, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

A room temperature is a low temperature.

A compliant layer, a spacer and a second dense circuit device are shown in the annotation.

Claims 49-55 are canceled. Their arguments are moot.

Interviews After Final

10. Applicant note that an interview after a final rejection must be submitted briefly in writing the intended purpose and content of the interview (the agenda of the interview must be in writing). Upon review of the agenda, the Examiner may grant the interview if the examiner is convinced that disposal or clarification for appeal may be accomplished with only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations will be denied. See MPEP 714.13 and 713.09.

Conclusion

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11. Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional).

Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rick K. Chang/
Primary Examiner, A.U. 3726

RC
February 19, 2009